

Customer No.: 31561
Docket No.: 10870-US-PA
Application No.: 10/604,689

REMARKS

Present Status of the Application

Claims 1 and 18 have been objected to because of certain informalities. Claims 18-19 have been rejected under 35 U.S.C. 112, second paragraph, as there is insufficient antecedent basis for the limitation "the invisible signals" recited in claim 18, and as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, respectively.

As regards the prior art rejections, the Office Action has rejected claims 1, 4, 6-7, 11, 13-16 and 19 under 35 U.S.C. 102(b) as being anticipated by Yanagisawa et al. (USPAP 2002/0046887, "Yanagisawa" hereinafter). Further, claims 2, 5, 12 and 17-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa in view of Dougherty et al. (USPN 6,076,734, "Dougherty" hereinafter).

Applicants have most respectfully considered the remarks set forth in this Office Action. In response thereto, Applicants have corrected the informalities to overcome the objections to and the rejections of the claims at issue. Claims 1, 18 and 19 have been further amended to patentably define the subject matter of the present invention over the prior art references. Upon entry of the amendments in this response, claims 1-2, 4-7 and 11-19 remain pending in the present application. Reconsideration of the claims is most earnestly solicited.

Objection to Claims

Claim 1 has been objected to because of the following informalities: line 4 of the

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claim currently states, "displaying a color in visible light spectrum." This phrase is incorrect grammatically, and one possible means for correction is as follows, "displaying a color in the visible light spectrum." Appropriate correction is required.

In response thereto, Applicants have amended "displaying a color in visible light spectrum" of claim 1 to "displaying a color in the visible light spectrum" and correspondingly revised other claims. Therefore, the objection to claim 1 should be withdrawn.

Claim 18 has been objected to because of the following informalities: line 3 of the claim states, "having at least two shadow pixel." This is incorrect grammatically, and one possible means for correction is as follows: "having at least two shadow pixels." Appropriate correction is required.

In response thereto, Applicants have amended "having at least two shadow pixel" of claim 18 to "having at least two shadow pixels". Therefore, the objection to claim 18 should be withdrawn.

Response To Claim Rejections Under 35 U.S.C. Section 112

Claim 18 has been rejected under 35 U.S.C. 112, second paragraph, as claim 18 recites the limitation "the invisible signals" in line 7, and there is insufficient antecedent basis for this limitation in the claim.

In response thereto, Applicants have amended "the invisible signals" of claim 18 to "the signals of electromagnetic radiation in the invisible part of the spectrum", assuring

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sufficient antecedent basis for the limitation in the claim, and the rejection of claim 18 should then be withdrawn.

Claim 19 has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

In response thereto, Applicants have amended claim 19 by replacing the erroneous term "longitudinally" with the correct term "latitudinally" as indicated by the Examiner in the outstanding non-final Office Action. Therefore, claim 19 is currently in a proper condition for allowance, and the rejection of claim 19 should be withdrawn.

Response to Claim Rejections under 35 U.S.C. Section 102

Claims 1, 4, 6-7, 11, 13-16 and 19 under 35 U.S.C. 102(b) have been rejected as being anticipated by Yanagisawa. Applicants respectfully traverse the rejection for at least the following reasons.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "

With reference to Applicants' claim 1 at issue, as amended, it recites,

"A pixel array for a non-touch panel input device, wherein the pixel array at least comprises a plurality of first pixel structures with each pixel structure at

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least comprising:

a sub-pixel, adapted for displaying a color in the visible light spectrum;

a first strip-shaped shadow pixel, longitudinally positioned on and extending along a first side of the sub-pixel, wherein the first strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a first electromagnetic radiation state or in a second electromagnetic radiation state; and

a second strip-shaped shadow pixel, latitudinally positioned on and extending along a second side of the sub-pixel, wherein the second strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a third electromagnetic radiation state or in a fourth electromagnetic radiation state such that the third and the fourth electromagnetic radiation state are different from each other.

wherein a position of the sub-pixel can be determined by detecting the first electromagnetic radiation state or the second electromagnetic radiation state of the electromagnetic radiation in the invisible part of the spectrum emitted from the first strip-shaped shadow pixel and the third electromagnetic radiation state or the fourth electromagnetic radiation state of the electromagnetic radiation in the invisible part of the spectrum emitted from the second strip-shaped shadow pixel." (Emphasis added)

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In page 4 of the Office Action, the Examiner has alleged that a "group of dots aligned along the y-axis in a dot array 32Xi" of Yanagisawa serves as the first strip-shaped shadow pixel of the present invention, whereas a "group of dots aligned the x-axis in the dot array 32Xi" of Yanagisawa purportedly serves as Applicants' second strip-shaped shadow pixel. Applicants respectfully disagree.

Yanagisawa teaches "[i]n the coding by the dot array, any numbers of dots may be used according to the required specification, i.e., the area of an input effective region, fineness of display images, accuracies or resolving power of coordinate inputting, and the specification of the area sensor as indicating input means. The dot array may be added by the size, shape, and color of dots, on demand. In the coding, "0" is not necessarily the same as the background as far as dots of "0" and "1" having respective colors can be determined and binarized. For example, although the dots of "0" and "1" have the same color, the dots can be coded as far as they have different contrasts. The space between dots is not limited to the same as the dot size just like in the embodiment, and any space in size may be applied. A larger space is preferable within the allowable limit. By employing a so-called DC free dot array in which the number of "1" dots are substantially the same in the entire dot array, the so-called gray grade may be unified. Furthermore, the so-called zero-run in which dots of "1" or "0" are continuously arranged may be prohibited. The unified gray grade and the zero-run prohibition enable the display images to be uniformly viewed as a whole" (paragraph [0103]).

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That is, Yanagisawa merely discloses the dot array may be added by the size, shape, and color of dots, on demand. The dot having a color represents "0" while the dot having another color is referred to as "1". Furthermore, the dot may indicate "0" or "1" by adding the size or the shape of dot. However, in the operation of "0" or "1", the dot does not emit electromagnetic radiation in the invisible part of the spectrum, and only the size of the dot, the shape thereof, or the color thereof is changed. Although the Examiner has construed that "the dot for a "0" can be a different color than the "1" dot, the use of different wavelengths is equivalent to different radiation states" on page 4 of the Office Action, it is respectfully submitted that the "color" in Yanagisawa refers to a visible light having a wavelength between 400~700 nm, whereas the electromagnetic radiation taught by claim 1 of the present invention is an invisible light and is emitted at a different wavelength outside the range of 400-700 nm. Therefore, Yanagisawa fails to teach or suggest "the first strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a first electromagnetic radiation state or in a second electromagnetic radiation state" or "the second strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a third electromagnetic radiation state or in a fourth electromagnetic radiation state such that the third and the fourth electromagnetic radiation state are different from each other" as recited in the amended claim 1 of the present invention.

For at least the foregoing reasons, Applicants respectfully submit that Yanagisawa does not teach each and every element in Applicants' claim 1. Independent claim 1 at

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issue patently defines over the prior art reference, and thus should be allowed.

Claims 4, 6-7, 11, and 13-16 respectively depend upon the allowable independent claim 1. Therefore, claim 4, 6-7, 11, and 13-16 should be allowed as a matter of law.

As to claim 19 of the present invention, as amended, it recites,

"A non-touch panel input device, comprising:

a display panel having a pixel array, wherein the pixel array at least comprises a plurality of first pixel structures with each pixel structure at least comprising:

a sub-pixel, adapted for displaying a color in the visible light spectrum;

a first strip-shaped shadow pixel, longitudinally positioned on and extending along a first side of the sub-pixel, wherein the first strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a first electromagnetic radiation state or in a second electromagnetic radiation state;

a second strip-shaped shadow pixel, latitudinally positioned on and extending along a second side of the sub-pixel, wherein the second strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a third electromagnetic radiation state or in a fourth electromagnetic radiation state such

that the third and the fourth electromagnetic radiation state are different from each other; and

a sensor suspended over the display panel, wherein the sensor is adapted for

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remotely obtaining a location of the sensor relative to the display by detecting the first electromagnetic radiation state or the second electromagnetic radiation state of the electromagnetic radiation in the invisible part of the spectrum emitted from the first strip-shaped shadow pixel and the third electromagnetic radiation state or the fourth electromagnetic radiation state of the electromagnetic radiation in the invisible part of the spectrum emitted from the second strip-shaped shadow pixel." (Emphasis added)

Therefore, amended claim 19 has the features "the first strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a first electromagnetic radiation state or in a second electromagnetic radiation state" and "the second strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a third electromagnetic radiation state or in a fourth electromagnetic radiation state". Similar to the reasons advanced above, claim 19 should be novel and patentable over Yanagisawa.

Response to Claim Rejections under 35 U.S.C. Section 103

Claims 2, 5, 12 and 17-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa in view of Dougherty. Applicants respectfully traverse the rejection for at least the following reasons.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In *re Royka*, 490 F.2d 981, 180

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USPQ 580 (CCPA 1974).

For at least the reasons furnished hereinbefore, it is respectfully submitted that Yanagisawa fails to teach or suggest "the first strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a first electromagnetic radiation state or in a second electromagnetic radiation state" or "the second strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a third electromagnetic radiation state or in a fourth electromagnetic radiation state such that the third and the fourth electromagnetic radiation state are different from each other" as recited in the amended claim 1 at issue.

Furthermore, Dougherty also fails to teach or suggest "the first strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a first electromagnetic radiation state or in a second electromagnetic radiation state" or "the second strip-shaped shadow pixel emits electromagnetic radiation in the invisible part of the spectrum either in a third electromagnetic radiation state or in a fourth electromagnetic radiation state such that the third and the fourth electromagnetic radiation state are different from each other" as recited in amended claim 1 of the present invention.

For at least the foregoing reasons, Applicants respectfully submit that the combination of Yanagisawa and Dougherty does not teach each and every element in claim 1. Accordingly, the *prima facie* obviousness has not been established, rendering Applicants' independent claim 1 non-obvious and allowable.

If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. In *re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.

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Cir. 1988). Based on the above case law, claims 2, 5, 12 and 17 depending upon the non-obvious claim 1 should accordingly be allowed.

As for claim 18 of the present invention, as amended, it states,

"A non-touch panel input device, comprising:

a display panel, comprising a plurality of pixel structures, at least some of the pixel structures each having at least two shadow pixels that are perpendicularly configured one to another, wherein **the shadow pixels are capable of emitting signals of electromagnetic radiation in the invisible part of the spectrum containing location information;** and

a sensor suspended over the display panel, wherein the sensor is capable of receiving the signals of electromagnetic radiation in the invisible part of the spectrum from the shadow pixel to find the location information by which the location of the sensor relative to the display can be obtained". (Emphasis added)

Therefore, Applicants' amended claim 18 contains the feature "the shadow pixels are capable of emitting signals of electromagnetic radiation in the invisible part of the spectrum containing location information", and for the same reasons discussed above, claim 18 should also be allowed.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-2, 4-7 and 11-19 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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